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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,057	07/25/2003	Yong Guen Lee	20059/PIA30746	2208

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EXAMINER

GUERRERO, MARIA F

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,057

Applicant(s)

LEE, YONG GUEN

Examiner

Maria Guerrero

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7-25-03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2822

DETAILED ACTION

1. This Office Action is the First Action on the merits.

Claims 1-12 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not state whether the inventor is a sole or joint inventor of the invention claimed.

Specification

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

5. Claim 9 is objected to because of the following informalities: in claim 9, the term "further" is misspelled and the claim recites "at least two of the at least one gate lines". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "low temperature" in claim 6 is a relative term which renders the claim indefinite. The term "low" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The specification does not provide any temperature range in order to determine what temperature could be considered low or high.

Drawings

7. Figures 1, 2A, 2B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 7-8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yeh et al. (U.S. 6,294,834).

Yeh et al. teaches a method for fabricating an RF semiconductor device (Abstract, col. 4, lines 42-46, 64). Yeh et al. shows forming a trench to define an active region and an element isolation region in a semiconductor substrate (col. 3, lines 18-35). Yeh et al. discloses forming at least one gate line within the active region not extending over a center of the trench (Fig. 1). Yeh et al. teaches forming an insulating layer on the at least one gate line and the semiconductor substrate (col. 3, lines 46-50). Yeh et al. shows forming a contact hole and a contact plug in the insulating layer (col. 3, lines 46-60). Yeh et al. discloses forming a conductive pattern layer electrically connected with the contact plug (Fig. 1). Yeh et al. teaches minimizing parasitic capacitance and resistance (Abstract, col. 1, lines 55-60, col. 2, lines 40-56).

9. Claims 1-4, 9, and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ma et al. (U.S. 5,939,753).

Art Unit: 2822

Ma et al. teaches a method for fabricating an RF semiconductor device (col. 1, lines 5-13, col. 11, lines 43-45). Ma et al. shows forming a trench to define an active region and an element isolation region in a semiconductor substrate (col. 3, lines 65-67, col. 4, lines 1-11). Ma et al. discloses forming at least one gate line within the active region not extending over the center of the isolating region (a center of the trench is inherent because the isolation region are formed by trenching) (Fig. 7, col. 4, lines 1-11). In addition, Ma et al. teaches forming an insulating layer (oxide, 7000-9000 angstroms) on the at least one gate line and the semiconductor substrate (Fig. 8, col. 8, lines 8-13, col. 9, lines 43-45). Ma et al. shows forming a contact hole and a contact plug in the insulating layer (Fig. 8). Ma et al. discloses forming a conductive pattern layer electrically connected with the contact plug (Fig. 8-9, col. 8, lines 30-36, col. 9, lines 9-64). Ma et al. teaches two gate lines being connected in the active region but not in the element isolation region (Fig. 8).

Furthermore, Ma et al. shows the RF semiconductor device comprising: a substrate having an active region and an isolation region; and a plurality of gates lines formed in the active region but not in the isolation region of the substrate (a center of the trench is inherent because the isolation region are formed by trenching) (Fig. 8, col. 4, lines 5-11).

10. Claims 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Maeda et al. (U.S. 6,452,249).

Maeda et al. teaches an RF semiconductor device comprising: a substrate having an active region and an isolation region; and a plurality of gate lines formed in the active

Art Unit: 2822

regions but not in the isolation region of the substrate (Fig. 1, Abstract, col. 14, lines 55-67, col. 15, lines 1-55). Maeda et al. shows a trench formed in the substrate and at least one of the gate lines does not extend over a center of the trench (Fig. 1, Abstract).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ma et al. (U.S. 5,939,753) in view of Hsu et al. (U.S. 6,44,517).

12. Regarding claims 5-6, Ma et al. does not specifically show the insulating layer being a low temperature oxide or a polyimide and the conductive pattern having the thickness as claimed. However, Hsu et al. shows the insulating layer being a low temperature oxide or a polyimide (col. 8, lines 15-25). Hsu et al. shows the conductive pattern having a thickness above 10,000 angstroms (col. 11, lines 45-60).

13. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Ma et al. by including the insulating layer and the thickness of the conductive pattern as taught by Hsu et al. in order to further increase the quality factor which is one objective in the two references (Ma et al., col. 9, lines 39-63; Hsu et al., col. 5, lines 57-65, col. 6, lines 1-10).

Art Unit: 2822


Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hoshino et al. (U.S. 6,528,848), Pon (U.S. 2002/0155655), D'Anna (U.S. 6,048,772), Tsai et al. (U.S. 6,537,849), Kalnitsky et al. (U.S. 6,489,217), and Tsai (U.S. 6,376,351) show several steps related to applicant's disclosure.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Guerrero whose telephone number is 571-272-1837.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Maria Guerrero
Primary Examiner
July 7, 2004